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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/823,945 | 04/13/2004 | Radislav Alexandrovich Potyrailo | RD27768-4 | 5447 |

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GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
PATENT DOCKET RM. BLDG. K1-4A59
NISKAYUNA, NY 12309

EXAMINER

COLE, MONIQUE T

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| ART UNIT | PAPER NUMBER |
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1743

DATE MAILED: 03/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/823,945

Applicant(s)

POTYRAILO ET AL.

Examiner

Monique T. Cole

Art Unit

1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3, 5, 12, 13, 14 & 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Musio et al. "Low Frequency a.c. response of polypyrrole gas sensors" (herein referred to as "Musio").

Musio teaches an apparatus comprising an injector to inject the chemical into the vapor delivery line; a sensor or sensor array; and a monitor in connection with the sensor element. See Figure 2. The sensor is electrochemical and is covered with a polypyrrole film. The monitor/computer may be adapted to do the necessary tasks associated with the apparatus.

3. Claims 1-5 & 12-15 are rejected under 35 U.S.C. 102(b) as being anticipated by USP 4,818,348 to Stetter (herein referred to as "Stetter '348").

Stetter '348 teaches an apparatus for detecting, identifying, quantifying and monitoring gas or liquids. The sample is fed into a vapor generator (volatilizer), at which point it comes into contact with a sensor. The sensor provides output to a computer that tabulates the information provided by the sensor. The sensor array may comprise electrochemical or semi-conductor type sensors, and may comprise optical or piezoelectric devices. The sensor of Stetter '348 is not substantially sorbent, as it facilitates compounds passing through the one or more filters. The

method further comprises a conversion means where characteristics such as flow rate (function of time) is measured. Subsequent to identification, the sensor signal can be used to quantify the compound of interest by selection of an appropriate calibration constant stored in the memory of the device (frequency counter).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stetter '348 in view of 5,686,779 to Vig (herein referred to as "Vig '779").

Stetter '348 fails to teach that the sensor element is a quartz crystal. Stetter '348, does, however, teach that the sensor may be piezoelectric.

Vig '779 teaches that piezoelectric sensors may be made of materials other than quartz. It can be inferred from this statement that piezoelectric sensors are conventionally made from quartz crystals. See pg. 6 of 12, lines 8-9. Thus, it would have been obvious to one of ordinary skill in the art to use a quartz crystal as the piezoelectric element in Stetter '348.

6. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stetter '348 in view of USP 5,233,194 to Mauze et al. (herein referred to as "Mauze et al.'194").

Stetter '348 fails to teach that the sensor element is coated with a random copolymer of tetrafluoroethylene and perfluoro-2,2-dimethyl-1,3-dioxole.

Mauze et al.'194 teach a gas sensor coated with TEFLON AF (a copolymer of tetrafluoroethylene and perfluoro-2,2-dimethyl-1,3-dioxole). See col. 6, lines 49-53. The coated sensor is taught to have the advantages of reduced complexity and cost, and it is more rugged, lightweight and compact. See col. 2, lines 11-15. Thus, given the numerous advantages of the coated sensor taught by Mauze et al.'194, it would have been obvious to one of ordinary skill in the art to modify the sensor of Stetter '348 by coating the sensor with a copolymer of tetrafluoroethylene and perfluoro-2,2-dimethyl-1,3-dioxole. Therefore, for the reasons set forth above, Applicant's claimed invention is deemed to be obvious, within the meaning of 35 USC 103, over Stetter '348 in view of Mauze et al. '194.

7. Claims 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stetter '348 in view of USP 4,781,798 to Gough (herein referred to as "Gough '798").

Stetter '348 fails to teach that the sensor is coated with a block dimethylsiloxane-carbonate copolymer.

Gough '798 teach that poly(dimethylsiloxane-carbonate) copolymers have good optical properties. See col. 4, lines 59-64. It would have been obvious to one of ordinary skill in the art to modify the optical sensors disclosed in Stetter '348 by coating them with a poly(dimethylsiloxane-carbonate) copolymers to derive better optical properties, as taught in Gough '798. Therefore, for the reason set forth above, Applicant's claimed invention is deemed to be obvious, within the meaning of 35 USC 103, over Stetter '348 in view of Gough '798.

8. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stetter '348 in view of USP 5,563,341 to Fenner et al. (herein referred to as "Fenner et al. '341").

Stetter '348 fails to teach that the sensor is coated with a silicone polyimide.

Fenner et al. '341 teach a sensor subjected to vapor pressure that is coated with polyimide. See col. 3, lines 44-47. The polyimide is stated to improve the repeatability of the sensor to detect constituents in vapor atmospheres. See col. 10-39. Thus, it would have been obvious to one of ordinary skill in the art to modify the sensor method of Stetter '348 by coating the sensor with a polyimide to improve the accuracy of the sensor device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monique T. Cole whose telephone number is 571-272-1255. The examiner can normally be reached on Monday-Thursday from 6:30 A.M. to 4:00 P.M.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Monique T. Cole
Primary Examiner
Art Unit 1743

mtc